

**SUPERFUND RESPONSE ACTION PRIORITY PANEL REVIEW FORM****Date Form Completed:** February 8, 2012**General Site Information**

Region:	2	City:	Herrings	State:	New York
CERCLIS EPA ID:	NYD986965333	CERCLIS Site Name:	Crown Cleaners of Watertown, Inc.		
NPL Status: (P/F/D)	Final	Year Listed to NPL:	2002		

**Brief Site Description:** *(Site Type, Current and Future Land Use, General Site Contaminant and Media Info, Site Area and Location information.)*

The nine-acre Crown Cleaners of Watertown site is a former dry cleaning and laundry facility located in the Village of Herrings, Jefferson County on New York State Route 3. There are three buildings in poor condition located on the property, which is surrounded by a chain-link fence. An occupied mobile home is located immediately adjacent to the property.

The site is located approximately 300 feet from the Village of Herrings' public water supply well and its southern border is adjacent to the Black River. A park is located to the east of the site and residences are located north and west.

A wetland area exists immediately west of the site and another wetland area is located approximately 800 feet southwest. A significant amount of debris, including, paper waste from the former paper factory, old appliances, and several drum carcasses, is located in the wetland to the southwest.

From 1890 until the mid-1960's, the site was used by the St. Regis Paper Co. to produce paper bags. A textile manufacturer subsequently operated on the site for several years. In the late 1970's, the property was purchased by Crown Cleaners of Watertown, Inc. and was operated until 1991 as a dry cleaning and laundry facility. Tetrachloroethylene (PCE) and machine oils and greases were used in the process. Wastewater was discharged into basement storage pits, which then discharged through the foundation walls to the ground. Used dry cleaning machine filters were dumped directly on the site property.

The residences in the area use either private wells or a public supply well for potable water supply. In 1991, the New York State Department of Health determined that the Village's water supply well was contaminated with PCE at concentrations ranging from 25 to 50 micrograms per liter (ug/L). Later that same year, the New York State Department of Environmental Conservation (NYSDEC) installed a treatment system on the Village's water supply system and determined the site to be the source of the PCE contamination.

The soils and sediments at the site are contaminated with PCE and polycyclic aromatic hydrocarbons (PAHs). The groundwater is contaminated with PCE.

**General Project Information**

Type of Action:	Remedial	Site Charging SSID:	02QF
Operable Unit:	OU 1	CERCLIS Action RAT Code:	
Is this the final action for the site that will result in a site construction completion?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Will implementation of this action result in the Environmental Indicator for Human Exposure being brought under control?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



**Response Action Summary**

Describe briefly site activities conducted in the past or currently underway:

Several New York State investigations were conducted during the 1990's that resulted in the site being referred to EPA for further evaluation in 2000.

In 2000, EPA sampled the facility's storage pits, oil tanks, on- and off-property soils, and the groundwater. PCE was detected in the soils and groundwater above NYSDEC's soil cleanup objectives and maximum contaminant levels, respectively. In addition to this investigation, EPA secured the property; removed and disposed of PCE-contaminated sludge and debris, sump pit water, and spent dry cleaning filters; removed friable asbestos-containing materials; and demolished and disposed of an unstable portion of the main building and tall smoke stack. In addition, approximately 5,000 gallons of waste oil were disposed of.

On September 4, 2002, the site was included on the National Priorities List.

EPA conducted field investigations from 2004 through 2011. Soil samples were collected at 51 locations on-site to a maximum depth of five feet (to the bedrock interface). Elevated PCE concentrations were found at five locations, mainly adjacent to the northern and western corners of the main building in the west-northwestern portion of the site (the highest concentration detected was 59,000 micrograms per kilogram [ug/kg]). These PCE-contaminated soils are a source of contamination to the groundwater. In addition, elevated concentrations of PAHs were detected in surface soil at 14 locations. The highest PAH concentration detected was 58,400 ug/kg. Further, eight volatile organic compounds (VOCs) including PCE were detected in soil and sediments in an adjacent wetland. The contaminated groundwater at the site represents an unacceptable human health risk and the contaminated soils and sediments pose an unacceptable ecological exposure risk.

Groundwater samples contained PCE in 11 of the 31 monitoring wells. Concentrations in these wells ranged from 6.7 micrograms per liter (ug/L) to 6,500 ug/L. The groundwater data indicates that an approximately 350-by 300-foot wide and 145-foot deep contaminant plume radiates from the PCE source area at the southwest corner of the main building on the property.

The data also suggests that a separate area of PCE contamination is present in the upper unit bedrock aquifer in the wetland area located west-southwest of the site. The dimensions of this plume are 275 by 225 feet wide and 40 feet deep.

These investigations culminated in the completion of a remedial investigation and feasibility study report in December 2011. The public comment period related to the Proposed Plan ended on January 17, 2012.

A Record of Decision for the site is planned for later this month (February). The design is expected to begin in March and construction in June 2012.

Specifically identify the discrete activities and site areas to be considered by this panel evaluation:

The planned remedial actions to be considered by the panel include building decontamination and demolition, excavation of PAH- and PCE-contaminated soil from the site, excavation of PCE-contaminated sediment and soil from the adjacent wetlands, transportation for treatment/disposal of the building debris and the PCE-contaminated soils and sediments at a compliant Resource Conservation and Recovery Act facility, backfilling of the excavated areas, and injection of an oxidizing agent into the contaminated groundwater at the source areas.



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Briefly describe additional work remaining at the site for construction completion after completion of discrete activities being ranked:

No other work will be necessary to achieve construction completion status.

**Response Action Cost**

Total Cost of Proposed Response Action:

*(\$ amount should represent total funding need for new RA funding from national allowance above and beyond those funds anticipated to be utilized through special accounts or State Superfund Contracts.)*

The estimated capital cost of the remedy is \$6,677,000. The estimated annual cost is \$57,000 for 10 years.

Source of Proposed Response Action Cost Amount:

*(ROD, 30%, 60%, 90% RD, Contract Bid, USACE estimate, etc...)*

The source of the cost information is the feasibility study report.

Breakout of Total Action Cost Planned Annual Need by Fiscal Year:

*(If the estimated cost of the response action exceeds \$10 million, please provide multiple funding scenarios for fiscal year needs; general planned annual need scenario, maximum funding scenario, and minimum funding scenario.)*

It is anticipated that the building decontamination and demolition, excavation of the contaminated soils and sediments, backfilling the excavated areas, and transport for off-site treatment/disposal of the building debris and the PCE-contaminated soils and sediments will take an estimated nine months. Construction of the injection infrastructure for the groundwater remedy will take about three months and injections will occur over the course of a year. Therefore, the full capital cost would be needed in fiscal year 2012. The annual monitoring costs could be incrementally funded during the course of the 10 years of the long-term response action.

Other information or assumptions associated with cost estimates?

N/A

**Readiness Criteria**

1. Date State Superfund Contract or State Cooperative Agreement will be signed (Month)?

June 2012

2. If Non-Time Critical, is State cost sharing (provide details)?

N/A

3. If Remedial Action, when will Remedial Design be 95% complete?

May 2012



4. When will Region be able to obligate money to the site?

June 2012

5. Estimate when on-site construction activities will begin:

June 2012

6. Has CERCLIS been updated to consistently reflect project cost/readiness information?

CERCLIS reflects the project cost/readiness information.

**Site/Project Name:**

Crown Cleaners of Watertown, Inc.

**Criteria #1 - RISKS TO HUMAN POPULATION EXPOSED (Weight Factor = 5)**

Describe the exposure scenario(s) driving the risk and remedy. Include risk and exposure information on current/future use, on-site/off-site, media, exposure route, and receptors:

The former Crown Cleaners property is not currently being used and is surrounded by a locked chain-link fence. Although the site's historical usage was commercial/industrial, it is anticipated that the land use in the future will be recreational. The possibility that the site could be redeveloped for residential use was also considered.

The baseline risk assessment identified the current and potential future receptors that may be affected by contamination at the site, the pathways by which these receptors may be exposed to site contaminants in various environmental media, and the parameters by which these exposures and risks were quantified. A trespasser was the receptor evaluated under the current scenario. Future scenarios considered a hypothetical commercial worker, on- and off-site resident (adult and child), construction worker and utility worker. The scenarios that presented excess lifetime carcinogenic risks (ELCRs) and Hazard Indices (HIs) exceeding 1.0 are described below.

**Commercial/Industrial Worker**

The ELCR and HI associated with the potential future exposure of the commercial/industrial worker to the on-site surface soil were calculated to be  $6.6 \times 10^{-3}$  and 3.8, respectively. The cancer risk estimate is higher than the EPA reference cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the non-cancer HI is higher than the EPA threshold of 1.0 (even when the target organ-specific HIs are considered). The primary risk driver for this receptor is PCE in the on-site groundwater, given the assumption that a future on-site commercial/industrial worker would drink the groundwater beneath the site. As the site is currently serviced by municipal water, however, it is unlikely that a future new commercial/industrial facility would not be connected to the municipal system.

**On-Site Residents (Adult and Child)**

The ELCR and HI projected for the future on-site adult resident were calculated to be  $2.7 \times 10^{-2}$  and 18, respectively. The ELCR and HI for the on-site child resident were calculated to be  $1.7 \times 10^{-2}$  and 51, respectively. The cumulative ELCR estimate for the lifetime resident over 30 years of exposure was calculated to be  $4.4 \times 10^{-2}$ . These cancer risk estimates significantly exceed the EPA reference cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the non-cancer HIs exceed the EPA threshold of 1.0. Ingestion, dermal absorption, and inhalation of PCE in the groundwater were the main contributors to the projected risk for a hypothetical future



on-site resident (contributing approximately 95% of the projected ELCR and HI). However, even when only the risks associated with exposure to the on-site surface soil were considered, the hypothetical future resident risks were still elevated relative to the reference cancer risk range and non-cancer HI threshold. The ELCR and HI projected for the on-site adult resident associated only with exposures to the on-site surface soil were  $1.0 \times 10^{-4}$  and 0.67, respectively. The cancer risk estimate is at the upper end of the EPA reference cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the non-cancer HI is below the EPA threshold of 1.0. The ELCR and HI projected for the on-site child resident associated only with exposures to the on-site surface soil were  $4.5 \times 10^{-4}$  and 5.2, respectively.

#### **Off-Site Residents (Adult and Child)**

The ELCR and HI projected for an off-site adult resident who was assumed to use the local groundwater were calculated to be  $1.8 \times 10^{-4}$  and 1.0, respectively. The ELCR and HI for the off-site child resident assumed to use the local groundwater were  $1.1 \times 10^{-4}$  and 2.4, respectively. The cumulative ELCR estimate for the lifetime resident over 30 years of exposure was calculated to be  $2.9 \times 10^{-4}$ . These cancer risk estimates exceed the EPA reference cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the non-cancer HI for the off-site child resident exceeds the EPA threshold of 1.0. Ingestion, dermal absorption, and inhalation of PCE in the groundwater were the majority contributors to the projected risk for a potential off-site resident who would use the local groundwater.

Estimate the number of people reasonably anticipated to be exposed in the absence of any future EPA action for each medium for the following time frames:

<b><u>MEDIUM</u></b>	<b><u>&lt;2yrs</u></b>	<b><u>&lt;10yrs</u></b>	<b><u>&gt;10yrs</u></b>
Soil	20	100	>100

Discuss the likelihood that the above exposures will occur:

Exposures are limited to some degree since the former Crown Cleaners property is not being used and is surrounded by a chain-link fence. However, the fence does not effectively prevent trespassing. Although the site was previously used for industrial purposes and the current usage is commercial, the local governments intend to develop a community park on the property. The Mayor of Herrings and the Supervisor of the Town of Wilna are currently pursuing the acquisition of the privately-owned property and intend to effect a change to the land use. If the property is redeveloped without remediation, potential human exposure to unacceptable levels of contaminants will occur. It should be noted that New York State uses restricted residential cleanup objectives for recreational areas.

In addition, as a result of a sharp curve in the road located adjacent to the site, there are frequent traffic accidents in icy conditions during the winter. These accidents damage the fence making the contaminated soil and buildings accessible. A request has been made by the local government to the New York State Department of Transportation to straighten out the curve. This would necessitate acquiring a portion of the property that is contaminated with PAHs and excavating the soil to prepare the road base. This excavation would expose the construction workers to contaminated soil.

#### **Other Risk/Exposure Information?**

The levels of PCE in the groundwater suggest that vapor intrusion may be a concern. A vapor intrusion (VI) subsurface investigation of off-site homes did not detect VOCs above health-based levels. However, a VI investigation was not performed on-site since the buildings are structurally unsound and cannot be occupied. If new structures are proposed to be built on the property or the existing structures reoccupied, a VI evaluation and, potentially, VI



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mitigation systems may be needed until groundwater cleanup criteria have been achieved throughout the entire area.

**Site/Project Name:** Crown Cleaners of Watertown, Inc.

**Criteria #2 – SITE/CONTAMINANT STABILITY (Weight Factor = 5)**

Describe the means/likelihood that contamination could impact other areas/media given current containment:

It is expected that the groundwater contaminant plume will continue to migrate and ultimately discharge to surface water.

Are the contaminants contained in engineered structure(s) that currently prevents migration of contaminants? Is this structure sound and likely to maintain its integrity?

The contaminants in the soils and wetland sediments are not contained in an engineered structure to prevent migration.

Are the contaminants in a physical form that limits the potential to migrate from the site? Is this physical condition reversible or permanent?

The PCE present in the soil is a continuing source of groundwater contamination and the PCE in the groundwater is in a highly mobile form that can migrate freely.

Are there institutional physical controls that currently prevent exposure to contamination? How reliable is it estimated to be?

No institutional controls are in place to prevent exposure to site contamination. While the site is fenced with a locked gate, the lock and fencing are frequently cut so that trespassers can access the on-site buildings, which are structurally unsound and contaminated. In addition, as a result of a sharp curve in the road located adjacent to the site, the fence along the curve has been damaged a number of times in icy conditions by motor vehicles.

Other information on site/contaminant stability?

N/A

**Site/Project Name:** Crown Cleaners of Watertown, Inc.

**Criteria #3 – CONTAMINANT CHARACTERISTICS (Weight Factor = 3)**

*(Concentration, toxicity, and volume or area contaminated above health based levels)*

List Principle Contaminants (Please provide average and high concentrations.):

*(Provide upper end concentration (e.g., 95% upper confidence level for the mean, as is used in a risk assessment, or maximum value [assuming it is not a true outlier], along with a measure of how values are distributed {e.g., standard deviation} or a central tendency values [e.g., average].)*

<b><u>Contaminant</u></b>	<b><u>*Media</u></b>	<b><u>**Concentrations</u></b>
PCE	GW	6,500 ug/L
PAHs	Soil	58,400 ug/kg
PCE	Soil	59,000 ug/kg



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(\*Media: AR – Air, SL – Soil, ST – Sediment, GW – Groundwater, SW – Surface Water)

(\*\*Concentrations: Provide concentration measure used in the risk assessment and Record of Decision as the basis for the remedy.)

Describe the characteristics of the contaminant with regard to its inherent toxicity and the significance of the concentrations and amount of the contaminant to site risk. *(Please include the cleanup level of the contaminants discussed.)*

Like most chlorinated solvents, PCE can cause central nervous system depression. Chronic exposure to tetrachloroethylene may adversely affect the neurological system, liver, and kidneys. PCE is reasonably anticipated to be a human carcinogen based on limited evidence from studies in humans and sufficient evidence of carcinogenicity from studies in experimental animals.

Mice fed high levels of a PAH during pregnancy had difficulty reproducing and so did their offspring. The offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people. Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

The soil cleanup level for PCE is 1,300 ug/kg. The cleanup objective for PCE in the sediments is 8 ug/kg. The groundwater standard for PCE is 5 ug/L. There are approximately 2,200 cubic yards of PAH-contaminated soils and 8,400 cubic yards of PCE-contaminated soils and sediments above the cleanup level.

Describe any additional information on contaminant concentrations that could provide a better context for the distribution, amount, and/or extent of site contamination. *(e.g. frequency of detection/outlier concentrations, exposure point concentrations, maximum or average concentration values, etc.....)*

Groundwater samples contained PCE in 11 of the 31 monitoring wells. Concentrations in these wells ranged from 6.7 ug/L to 6,500 ug/L. The groundwater data indicates that an approximately 350- by 300-foot wide and 145-foot deep contaminant plume radiates from the PCE source area located at the southwest corner of the main building on the property. The data also suggests that a separate area of PCE contamination is present in the upper unit bedrock aquifer in the wetland area located west-southwest of the site. The approximate dimensions of this plume are 275 by 225 feet wide and 40 feet deep.

Based upon the local groundwater flow direction (generally to the south) and groundwater quality data, contaminants in groundwater originating from the various suspected potential source areas have migrated, and will continue to migrate until dilution and removal mechanisms such as adsorption, degradation, precipitation, and limited volatilization result in their eventual non-detection or until the contaminated groundwater discharges to the wetland areas and/or the Black River, particularly if this migration occurs within the upper bedrock fractures. Vertically, groundwater data also shows that site-related constituents have migrated to and within the lower unit fractured bedrock.

Other information on contaminant characteristics?

N/A



**Site/Project Name:**

Crown Cleaners of Watertown, Inc.

**Criteria #4 – THREAT TO SIGNIFICANT ENVIRONMENT (Weight Factor = 3)**

*(Endangered species or their critical habitats, sensitive environmental areas.)*

Describe any observed or predicted adverse impacts on ecological receptors including their ecological significance, the likelihood of impacts occurring, and the estimated size of impacted area:

Terrestrial and wetland plants were determined to be at potential risk from toxic effects from copper, lead, and selenium, based upon the comparison to phytotoxic screening benchmarks; these constituents were identified as chemicals of ecological concern (COECs). However, a qualitative survey of vegetation cover-types present did not reveal areas of stressed vegetation or areas devoid of vegetation. Based upon the exposure assessment, risk characterization, and associated uncertainties, the potential risk to this assessment endpoint was considered to be relatively low.

The exposure assessment and risk characterization for soil and sediment invertebrates revealed potential risks from toxic effects from copper exposure in upland surface soils. Anecdotal evidence of an invertebrate community suggested this exposure is not acute in nature and the associated uncertainties would indicate this potential risk may be limited to one location. In the wetland sediments, the screening assessment, using benthic community benchmarks for community level impairment, identified PAHs, chlordane, antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, vanadium, and zinc as posing a potential risk to benthic community structure and function.

The short-tailed shrew was used as a representative mammalian species that is indigenous to New York and would utilize the available upland habitats present. A mean exposure evaluation employing conservative exposure parameters for upland habitats revealed no observable adverse effects level (NOAEL) hazard quotients (HQs) <1 for all COPECs but cadmium and lead. No COPECs with lowest observable adverse effects level (LOAEL) HQs >1 were identified. The lack of a LOAEL HQ>1, and the associated conservative uncertainty associated with the exposure assessment, suggests potential risks to terrestrial mammals should be considered relatively low in the upland habitats. The wetland exposure evaluation for the shrew identified seven metals - aluminum, antimony, arsenic, cadmium, lead, selenium, and silver, with NOAEL HQs >1. Aluminum was the only COPEC with a LOAEL HQ > 1.0 for this receptor. While exceedance of a LOAEL value may be a basis for the conclusion of significant risk, aluminum is one of the most abundant metals in the crust of the earth and is not typically associated with significant bioaccumulation in tissues. Therefore, the potential risks to mammals associated with these metals are not considered significant in the wetland areas. The American robin was used as a representative avian species that would utilize the available upland habitats present. A mean exposure evaluation employing conservative exposure parameters identified NOAEL HQs to remain <1 for all but cadmium, lead, and selenium. Of these, lead was the only metal with a mean exposure point dosage that exceeded the LOAEL-based exposure dosage. Based upon the exceedance of a LOAEL and given that lead is not an essential macronutrient for avian metabolism, lead was identified as a COEC in the upland soils. The mean exposure assessment for the wetland habitats revealed NOAEL HQs < 1 for all COPECs except lead and zinc. Of these two metals, the mean lead exposure resulted in exceedance of the LOAEL dosage level for the receptor evaluated. Based upon the exceedance of a LOAEL, and that lead is not an essential macro-nutrient for avian nutrition, a potential significant risk exists for avian receptors from lead exposure in wetland sediments and is identified as a COEC for this environmental media.

Would natural recovery occur if no action was taken?

☒ Yes

☐ No

If yes, estimate how long this would take.

If no action were taken, the restoration of the groundwater would take an estimated 100 years (as compared to the groundwater remedy that would address the source in approximately one year and allow natural attenuation to address downgradient areas in approximately 30 years).



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Other information on threat to significant environment?

N/A

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Crown Cleaners of Watertown, Inc.

**Criteria #5 – PROGRAMMATIC CONSIDERATIONS (Weight Factor = 4)**

*(Innovative technologies, state/community acceptance, environmental justice, redevelopment, construction completion, economic redevelopment.)*

Describe the degree to which the community accepts the response action.

The community at large, as well as elected officials, are supportive of the planned response action. In fact, Congressman Bill Owens sent EPA letters in February and October 2011 in support of developing a community park on the site.

Describe the degree to which the State accepts the response action.

The State of New York agrees with the selected response action and will provide the necessary matching funds to implement the action.

Describe other programmatic considerations, e.g.; natural resource damage claim pending, Brownfields site, use of innovative technology, construction completion, economic redevelopment, environmental justice, etc...

Since the primary construction-related actions associated with the selected remedy are building demolition, excavation of contaminated soils and sediments, and the construction of the injection infrastructure for the groundwater remedy, it is not anticipated that the design and implementation time will be very lengthy. Therefore, it is expected that construction completion can be achieved relatively quickly (in fiscal year 2013).